ITCS 209 Object Oriented Programming	Name:	Lab	Challenge Bonus	
	ID:			
	Section:			

Lab02: Data Type, Decision and Loop – Parking Ticket

In this lab, you will be implementing a simple parking ticket program.

The parking ticket program finds how long each car has been parked in the parking lot, and calculates the total parking fee based on the given parking rate. To complete this program in JAVA, you must create a class called "`ParkingTicket`" in `ParkingTicket.java`. In the main method, you have to complete the following tasks.

Task 1: Compute total parking duration

1.1 Create two variables to keep the times when entering and leaving the parking lot in military format (e.g., 0950 means 09:50, and 1715 means 17:15) – *Question: What should be the data type for these variables?*

1.2 Compute the total parking duration by finding the number of hours and minutes between those two times (the two variables in step 1.1). Here is a sample result.

If the entering time is "0950" and the leaving time is "1715", the parking duration is 7 hours and 25 minutes

1.3 Your program should print the following message

```
Entering time -> 0950
Leaving time  -> 1715
Parking duration: 7 hours and 25 minutes
```

Task 2: Visualize the parking duration

2.1 Display the hours and minutes from task 1 in form of symbols pattern. You can design your own pattern. Here is just a sample result.

```
|***************|***************|***************|*************** 1 hr
|***************|***************|***************|*************** 2 hr
|***************|***************|***************|*************** 3 hr
|***************|***************|***************|*************** 4 hr
|***************|***************|***************|*************** 5 hr
|***************|***************|***************|*************** 6 hr
|***************|***************|***************|*************** 7 hr
|***************|**********   |           |           25 min
```

Task 3: Calculate parking fee

3.1 The parking charges 10 Baht for the first two hours. An additional 40 Baht is charged for every additional hour, or a fraction of an hour.

3.2 From the parking duration in task 1, calculate the parking fee using the given parking rate above. For example, if the parking duration is 3 hours 25 minutes, the parking fee is 90 Baht. (Details: The parking charges 10 Baht for the first two hours. Then, another 80 Baht is charged for an additional 1 hour and 25 minutes. In total, the parking fee is 10 + 80 = 90 Baht

3.3 The program should print the following message

```
Parking fee: 90 Baht
```

Change Log: V1.1 -> 11 Jan 2022 edit parking rate

Challenge Bonus (Optional):

Complete the following two tasks to gain bonus score.

Task A: Allow overnight parking

Usually, the entering time should be less than the leaving time. If the entering time is later than the leaving time, this means the car is parked overnight.

For example, if the entering time is “1715” and the leaving time is “0950”, the parking duration is 16 hours and 35 minutes. The “(overnight)” message should be noted at the leaving time. Here is a sample result.

```
Entering time -> 1715
Leaving time  -> 0950 (overnight)
Total duration: 16 hours and 35 minutes

|***************|***************|***************|*************** 1 hr
|***************|***************|***************|*************** 2 hr
|***************|***************|***************|*************** 3 hr
|***************|***************|***************|*************** 4 hr
|***************|***************|***************|*************** 5 hr
|***************|***************|***************|*************** 6 hr
|***************|***************|***************|*************** 7 hr
|***************|***************|***************|*************** 8 hr
|***************|***************|***************|*************** 9 hr
|***************|***************|***************|*************** 10 hr
|***************|***************|***************|*************** 11 hr
|***************|***************|***************|*************** 12 hr
|***************|***************|***************|*************** 13 hr
|***************|***************|***************|*************** 14 hr
|***************|***************|***************|*************** 15 hr
|***************|***************|***************|*************** 16 hr
|***************|***************|*****      |          35 min

Total parking fee: 610 Baht
```

Task B: Implement methods/functions

Create a static method called **`printParkingDuration(String enterTime, String leaveTime)`** to print the entering time, leaving time, and parking duration message as mentioned in task 1. This method must receive two parameters as input which are entering time and leaving time respectively.

Create a static method called **`printParkingFee(int hour, int minute)`** to calculate the parking fee and print out the message as shown in task 3. This method receives two parameters as input which are number of hours and minutes of the parking duration respectively.

Change Log: V1.1 -> 11 Jan 2022 edit parking rate